

2.1: QUANTITATIVE DISTRIBUTIONS:

Categorical Distributions (pictures):

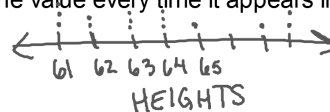
- 1) Bar chart
- 2) Pie Chart
- 3) Two way tables

Quantitative Distributions (pictures)

- 1) Dotplots
- 2) Stemplots
- 3) Histograms
- 4) Boxplots

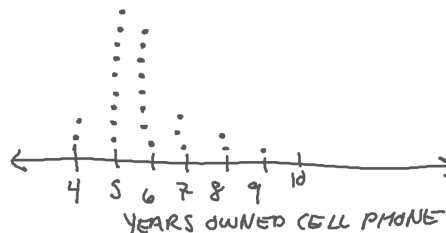
DOTPLOTS:

- X - axis = number line with every value of the variable
- put a dot above the value every time it appears in your data set
- label!



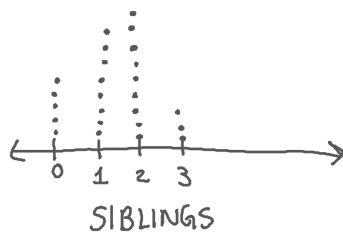
- Example:

Make a dotplot for the number of years that the SDA students have owned a cell phone



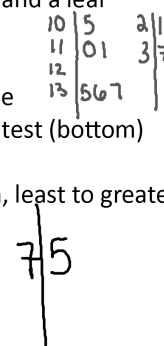
Try this one....

Make a dotplot for the number of siblings the SDA students have:



STEMPLOTS:

- * Each observation is separated into a stem and a leaf
- * Leaf = the final digit of the number
- * Draw vertical line
- * Stems are placed on the left side of the line
- * Stems are ordered from least (top) to greatest (bottom)
- * ALL stems must be written
- * Leaves are written to the right of the stem, least to greatest
- * Spacing is very important!
- * no commas between each leaf



Example: Test scores: ~~75~~ 80 ~~82~~ ~~70~~ ~~71~~ ~~71~~
68 60 95 91 ~~77~~ ~~76~~
~~70~~ ~~67~~ ~~62~~ ~~75~~ ~~76~~ 80

Test Scores

6	0 2 7 8
7	0 0 1 1 5 5 6 6 7
8	0 0 2
9	1 5

Key:
6|0 = 60%

Example: Make a stemplot of the following list of ages of parents of seniors at CB South:

~~38~~ ~~44~~ ~~48~~ ~~40~~ ~~45~~ ~~49~~ ~~52~~ 60 ~~39~~ ~~44~~
~~43~~ ~~49~~ ~~51~~ ~~55~~ 61 ~~54~~ ~~52~~ ~~54~~ ~~46~~ ~~47~~
~~48~~ ~~40~~ ~~47~~ ~~49~~ ~~53~~ ~~55~~

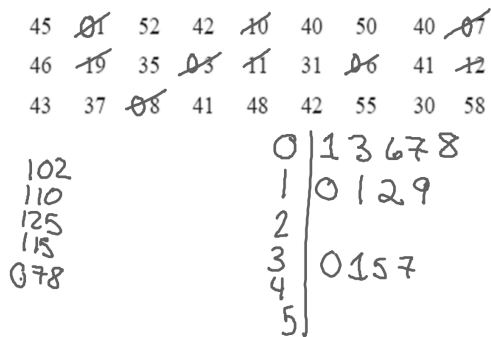
Ages of Parents @ CBS

3	8 9
4	0 0 3 4 4 5 6 7 7 8 8 9 9 9
5	1 2 2 3 4 4 5 5
6	0 1

Key:
3|8 = 38 yrs. old

Example: Make a stemplot of the following data:

The following data show the ages of the 27 residents of a community in Alaska. Make a stem-and-leaf plot to display the data.

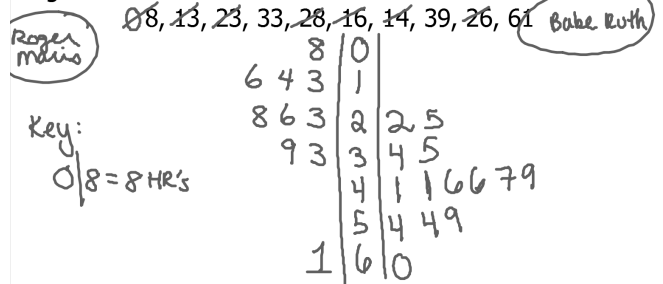


BACK to BACK STEMPLOTS: Compares 2 sets of data

Example:

Babe Ruth's homerun totals each season for the Yankees:
 54, 59, 35, 41, 46, 25, 47, 60, 54, 46, 49, 41, 34, 22

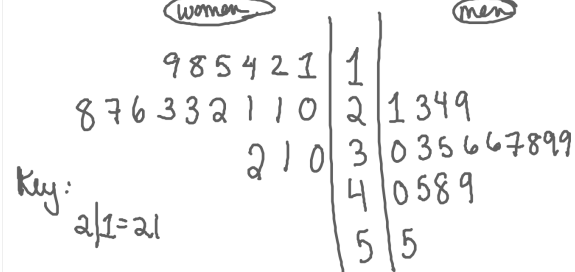
Roger Maris' homerun totals for the Yankees:



Example:

Men: 23 24 55 40 48 49 45 29 38
 37 39 38 30 35 36 39 21 36

Women: 15 11 12 14 19 18 23 30 31
 21 32 22 26 27 28 23 21 20

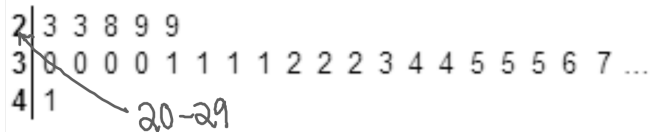


Splitting Stems

When?

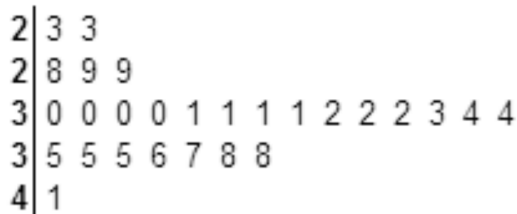
When the data is clustered on one or just a few stems

Example: AGE GUESSES

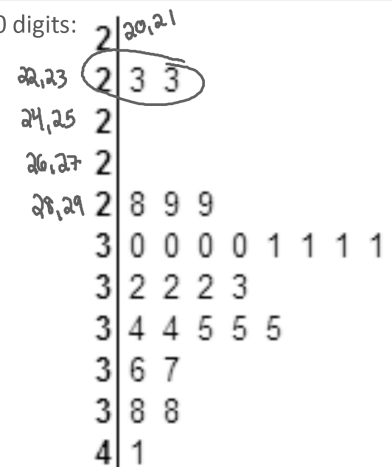


HOW?

2 stems for every 10 digits:

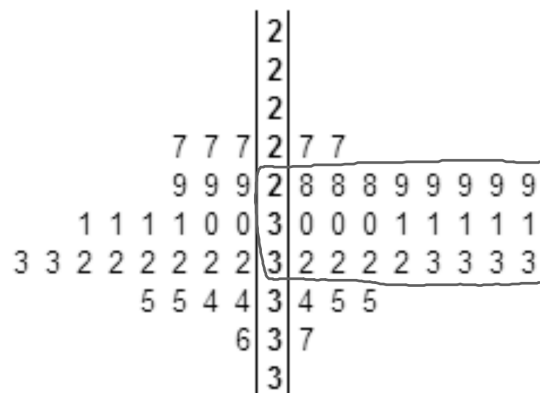


5 stems for every 10 digits:



2
2 3 3
2
2
2
2
2 8
2 9 9
3 0 0 0 0
3 1 1 1 1
3 2 2 2
3 3
3 4 4
3 5 5 5
3 6
3 7
3 8 8
3
4
4 1

BLOCK 2

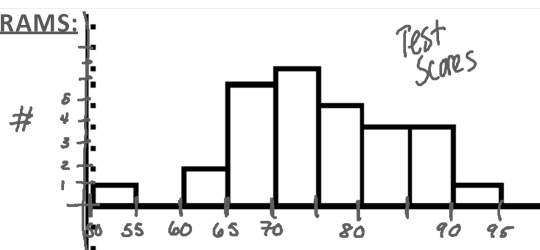


Test Scores

key:
6|7=677

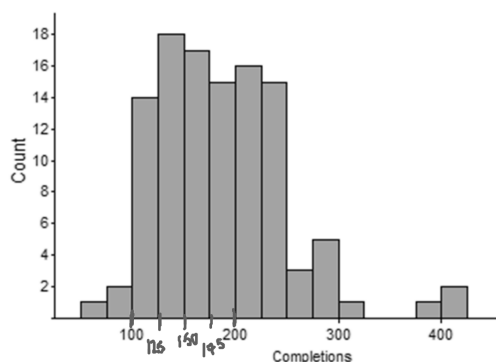
6	789
7	00123
7	55777888889
8	1234
8	66788
9	0

(/)



- * Observations are placed into equal-width *bins* (bars)
- * Count how many observations are in each bin, and draw bar to that height.
- * Similar to bar chart, but there are no spaces between bins/bars
- * Bin width can be changed, but need minimum 5 bars
- * LABEL!!!! (X and Y axis, and title)
- * Can do # or % on Y axis

Completions of NCAA quarterbacks in 2006

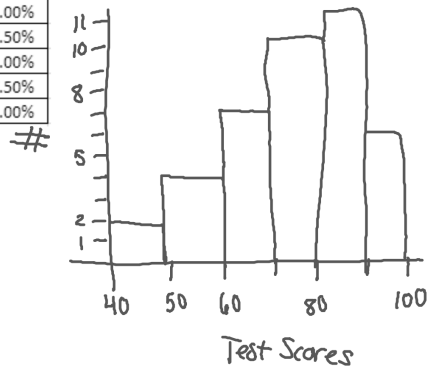


43	85	64	57	61	73	77	87	90	92
70	72	63	68	75	71	78	80	82	88
83	82	73	71	62	65	58	55	45	99
85	87	92	93	84	87	86	81	74	66

Bin	Frequency	Rel. Freq.
40 - 50	2	5%
50 - 60	4	10%
60 - 70	7	17.5%
70 - 80	10	25%
80 - 90	11	27.5%
90 - 100	6	15%

HISTOGRAM:

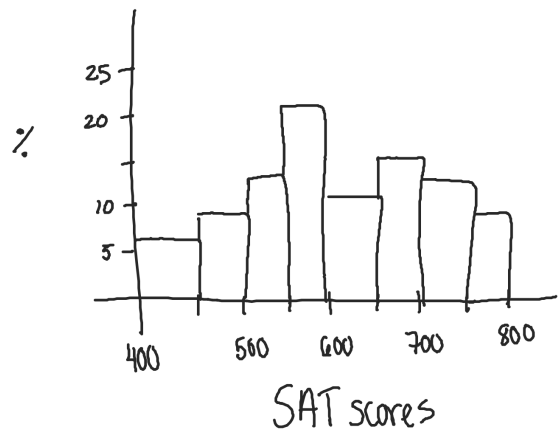
Bin	Frequency	Rel. Freq.
40 - 50	2	5.00%
50 - 60	4	10.00%
60 - 70	7	17.50%
70 - 80	10	25.00%
80 - 90	11	27.50%
90 - 100	6	15.00%



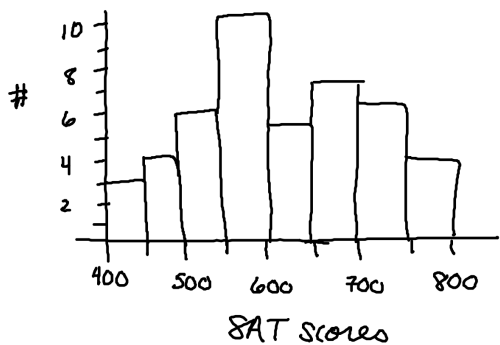
Another example: SAT scores

580	420	600	560	640	590	660	600
590	510	610	570	650	590	670	610
410	460	450	510	500	560	570	540
680	650	720	680	720	740	780	
720	670	720	700	760	760	760	
490	420	530	470	570	580	520	

	freq.	%	n=45
400-450		3	6.7%
450-500		4	8.9%
500-550		5	11.1%
550-600		5	11.1%
600-650		5	11.1%
650-700		5	11.1%
700-750		5	11.1%
750-800		5	11.1%



HISTOGRAM:



HISTOGRAMS ON THE CALCULATOR: see page 52-53 in book for instructions

Inputting data into the calculator

Example 1: Using the data for HOURS SLEEPING, input into your calculator and create a histogram

Example 2: Using the data for HEIGHT (in inches) create a histogram

Now change it to a relative frequency histogram

COMPLETE THE WORKSHEET:
2.1- QUANTITATIVE DISPLAYS PRACTICE

TRANSFERRING LISTS:

- naming lists
- sorting lists

PERSON #1: name a list "WRITE" and type in the data for the # of writing utensils

PERSON #2: name a list "SIBS" and type in the data for the # of siblings

TRANSFERRING!

Person #1 send WRITE to person #2
Person #2 send SIBS to person #1

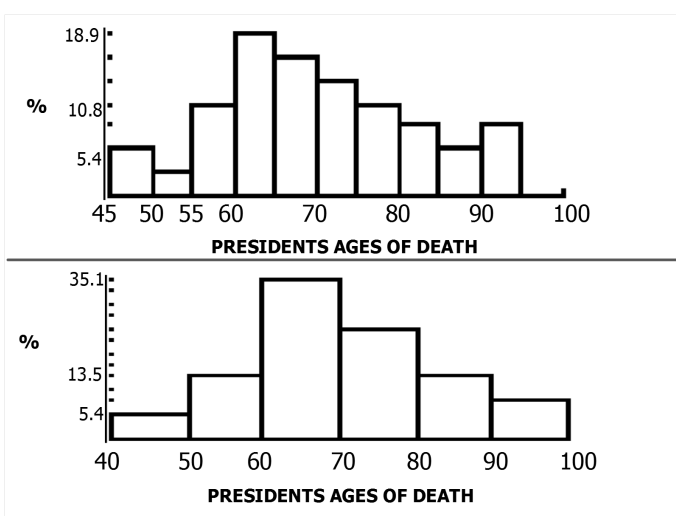
- Seeing if you got a list
- Looking at a transferred list in Editor window, making histogram

Please transfer the following lists to your calculator:

FUELA
FUELB
GPA
INCOM
PRES
STATE
SATMF
SATMM
TEST

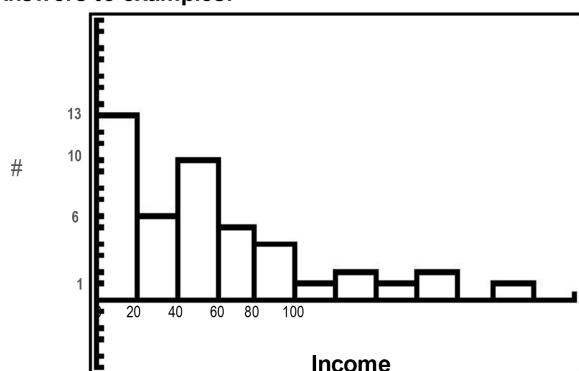
Example 1: Using the list PRES, create a **relative frequency** histogram. This is a list of the ages of death of all US presidents. See below:

Washington	67	Polk	53	Garfield	49	Coolidge	60
J. Adams	90	Taylor	65	Arthur	56	Hoover	90
Jefferson	83	Fillmore	74	Cleveland	71	F.D. Roosevelt	63
Madison	85	Pierce	64	B. Harrison	67	Truman	88
Monroe	73	Buchanan	77	McKinley	58	Eisenhower	78
J.Q. Adams	80	Lincoln	56	T. Roosevelt	61	Kennedy	46
Jackson	78	A. Johnson	66	Taft	60	L. Johnson	64
Van Buren	79	Grant	63	Wilson	67	Nixon	81
W.H. Harrison	68	Hayes	70	Harding	57	Reagan	93
Tyler	71						

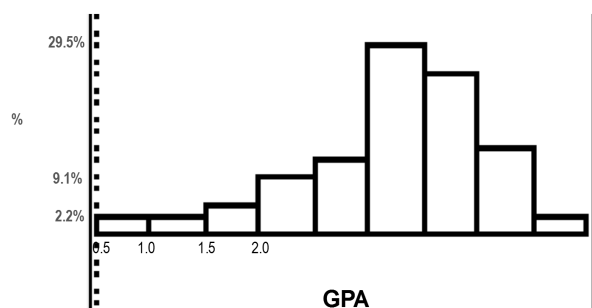


Example 2: Using the list INCOM, create a **frequency** histogram on your paper. These are incomes (in thousands of dollars) for a sample of adults. 3 = \$3,000 .

Answers to examples:



Example 3: Using the list GPA, create a **relative frequency** histogram on your paper. This is a sample of GPAs from HS students.



Complete classwork 2.1B: (turn in)